

YUJIN HAM

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RESEARCH INTERESTS

My research interests are in the areas of computer vision, deep learning, video understanding, and their downstream applications in healthcare

EDUCATION

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| Rice University Ph.D., Department of Electrical and Computer Engineering | Houston, TX, United States Aug 2022 – Present |
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| Ewha Womans University Master of Science, Department of Electronic and Electrical Engineering <ul style="list-style-type: none">Thesis advisor: <i>Prof. Je-Won Kang</i> ↗Thesis title: Quality-adaptive Image Compression Artifact Removal using Deep LearningGPA: 4.23 / 4.30 | Seoul, South Korea Mar 2020 – Feb 2022 |
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| Ewha Womans University Bachelor of Science in Engineering, Department of Electronics Engineering <ul style="list-style-type: none">GPA: 3.54 / 4.30 | Seoul, South Korea Mar 2016 – Feb 2020 |
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PUBLICATIONS AND PRESENTATIONS

- Yu-Jin Ham**, Chaehwa Yoo, Je-Won Kang, “Compression Artifacts Invariant Training with Domain Adaptation”, Korean Signal Processing Conference, Sep. 2021.
- Yu-Jin Ham**, Chaehwa Yoo, and Je-Won Kang, “Training compression artifacts reduction network with domain adaptation”, Applications of Digital Image Processing XLIV. Vol. 11842. International Society for Optics and Photonics, 2021. [↗](#)
- Yu-Jin Ham**, Je-Won Kang, “Mid-view Quantization Noise Removal of Multi-view Video using Convolutional Neural Network”, The Korean Institute of Broadcast and Media Engineers, 2020.
- Na-Young Kim, **Yu-Jin Ham**, Je-Won Kang, “Effective Video Captioning Algorithm Using Feature Attention Model”, Image Processing and Image Understanding, 2020.

RESEARCH EXPERIENCES

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| Information Coding and Processing Laboratory (ICPL) ↗ Advisor: <i>Prof. Je-Won Kang</i> Research Assistant, Ewha Womans University <ul style="list-style-type: none">keywords: Compression Artifact Reduction, Image enhancement, DA, RL, Blind Image Quality Assessment (BIQA)Conducted research about quality adaptive image denoising by exploiting adversarial learning from DA in <i>Pytorch</i>proposed self-supervised quality-agnostic image denoising using BIQA and RL in <i>Pytorch</i>Conducted experiment about 6DoF immersive video quantization noise removalWorks accepted for publication at SPIE '21 (oral presentation) and 3 Korean conferences (oral presentation) | Mar 2020 – Feb 2022 |
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| <i>Undergraduate Research Assistant, Ewha Womans University</i> <ul style="list-style-type: none">Subject: Photos classifying Application by exploiting Histogram of Oriented Gradients (HOG) <i>through Python</i>Categorized photos according to the subject using face recognition—by whether they contained people or landscape | Dec 2018 – Feb 2019 |
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| Multiagent Communications and Networking Laboratory ↗ Advisor: <i>Prof. Hyung-Gon Park</i> Undergraduate Research Assistant, Ewha Womans University <ul style="list-style-type: none">Subject: Convolutional Neural Network (CNN) based classifier and SVM-based classifier performance comparisonCoded Support Vector Machine (SVM) based classification algorithm from scratch as a baseline <i>using MATLAB</i> | Jun 2018 – Aug 2018 |
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PROJECTS

- Compression and Transmission Technologies for Ultra High Quality Immersive Videos** Mar 2020 – Dec 2020
Supporting 6DoF | Pytorch
Institute of Information & Communications Technology Planning & Evaluation (IITP) Daejeon, South Korea
- Keywords: DL-based image denoising, 6DoF data, Quantization noise removal
 - Exploited redundant information from adjacent views to effectively remove quantization noise of intermediate view images
- A Convolutional Neural Network based Classification System** Mar 2018 – Dec 2018
for Educational Learning States using Pupil Sizes | Pytorch and MATLAB
Korea Center for Women in Science, Engineering, and Technology (WISET) ☞ Seoul, South Korea
- Keywords: Machine Learning (ML), Biomedical data classification
 - Developed a CNN-based learning state (concentrated or distracted) classification algorithm with one-dimensional pupil size data by transforming plotted 1D data over time into 2D images and compared the performance against SVM classifier

TEACHING EXPERIENCES

- Teaching Assistant** | Ewha Womans University Fall 2020 / Spring 2021
Advisor: Prof. Nak-Myeong Kim (Random Process) / Prof. Su-Hyun Park (Digital Engineering)
- Marked assignments and provided feedback comments and solution
 - Invigilated online and offline tests and rehearsed the online test before the test
- Undergraduate Peer Instructor** | Ewha Womans University Spring 2018 / Fall 2019
Advisor: Prof. Hye-Sook Lim (Digital Engineering) / Prof. Hyung-Gon Park (Random Process)
- Gave additional lectures on class review and assignments every week, and provided Q&A time before the final exam
 - Tutored the tools used in class, MATLAB, and demonstrated visualization of class materials

HONORS AND AWARDS

- Grace Hopper Celebration (GHC) Scholarship 2021** | AnitaB.org ☞ & Association for Computing Machinery (ACM) 2021
- Admission Scholarship for Outstanding Scientists (full tuition for one year)** | Ewha Womans University 2020
- Student Portfolio Award (1st prize)** | Accreditation Board for Engineering Education of Korea (ABEEK) 2019
- Ewha Career Design Scholarship (Merit-based)** | Ewha Womans University 2019
- Dean's List** | Ewha Womans University Spring / Fall 2019
- Engineering Leadership Scholarship (Merit-based)** | Ewha Womans University 2018, 2019
- Peer Instructor Scholarship (Merit-based)** | Ewha Womans University Spring 2018, Fall 2019
- Global Frontier Travel Grant (Visiting the US for 2 weeks)** | Ewha Womans University 2018

SKILLS

Languages: English(fluent), Korean(native)

Programming: Python, C/C++ , LaTeX, VHDL/Verilog, ARM Assembly, OrCAD (with PSPICE)

ML/DL Frameworks: PyTorch, TensorFlow, MATLAB

OS/Environments: Linux, Mac, Windows, Anaconda, Docker

MATHEMATICS AND RELEVANT COURSES

* denotes graduate course

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| Computer Vision* | Deep Learning for Medical Image Processing* | Image Coding* |
| Advanced Random Process* | | Machine Learning* |
| Scene Analysis* | Bayesian Deep Learning* | Optimization Theory* (Audit) |
| Brain-Computer Interface* (Audit) | Mathematics for System Design* (Audit) | Advanced Programming for Electronics |
| Embedded System Design and Laboratory | Digital Image Processing | Digital System Design and Laboratory |
| Digital Signal Processing | Bioelectronics Engineering | |

VOLUNTEERING EXPERIENCES

- Senior Mentoring** | *Women in Engineering – Undergraduate Leading Program (WE-UP)* Spring 2020
- Matched with undergraduate students who want to or consider going to pursue graduate study
 - Mentored students by describing research areas in my department and graduate life in general
- 10th Korea Scholar's Conference for Youth (KSCY)** ☞ | *Yonsei University International Campus* Summer 2018
- 10th KSCY Facilitator in Electrical and Electronic Engineering department
 - Counseled high school students to build research areas as a university student mentor
- CoDrone Class for Multi-cultural Families** | *Ewha Womans University* Aug 2018
- Received two days of education on block-based coding for CoDrone and served as a staff for three days
 - Helped students complete the project; block coding and assembling drones
- DRIM Contest** | *Ewha Womans University & Korea University & ROBOTIS* Jul 2016 – Aug 2016
- Educated students on how to use the C++ based DRIMLineR platform and software
 - Prepared the contest; designed circuits and soldered electronic components to printed circuit boards
- Professional Ewhains at Cultural Exchange (PEACE) Buddy** | *OIA, Ewha Womans University* 2016
- Assisted six international exchange students to adapt to living in South Korea and campus life in Ewha
 - Volunteered at events under OIA, such as welcome party, campus tour, and annual festivals in English

EXTRACURRICULAR ACTIVITIES

- Conference Staff**
- The Korean Institute of Broadcast and Media Engineers (KIBME) Nov 2020
 - The Korean Institute of Communications and Information Sciences (KICS) Jul 2018
- Ewha Electronics Innovations (EEI)** ☞ , Academic Club | *Ewha Womans University* 2016 – 2019
- Club Officer (2018): Designed the project, lectured on project-related skills such as Arduino coding, and introduced EEI to companies such as SKT and Hyundai through an interview and a conference booth for undergraduate
 - Performed hands-on projects every summer vacation using several microcontroller units, electronic components, communication modules, and coding tools, e.g., Arduino, AVR Studio (ATmega128), ZigBee, Bluetooth, and MIT App Inventor
- Entrepreneurship Hackathon** | *Pohang University of Science and Technology (POSTECH)* Summer 2019
- Subject: Driving Information Networking System (DINS) for Autonomous Driving
 - Proposed the networking system to enable autonomous vehicles and ordinary automobiles to communicate in a transitional era in which they coexist; Completed a Business Model Canvas (BMC), business thesis, and Pitch deck
- Ewha Global Frontier** (Short-term Abroad Project) | *TX/NC/CA/MA, USA* Jul 2018 – Feb 2019
- Subject: How to release the career breaks of the Korean women engineers and encourage young women into STEM
 - Presented the project objective and discussed related issues at universities (MIT, NCSU, Rice, UNCG, UT Austin), international organizations (NASA, Texas Medical Center), and global companies (Apple, Nvidia)